The goal of this homework is to use MATLAB to plot a few simple functions in 1D and 2D (surface) graphs. Here are some useful commands. The goal is to understand the meaning of (reason for) every character in each expression:

```matlab
>> x = 0:0.1:5.0;
>> a = sin(x).*cos(3*x);
>> b = exp(-x.^2);
>> plot(a.*b)
>> [X,Y] = meshgrid(x,x);
>> C = sin(X).*exp(-Y.^2);
>> surf(C)
>> Im = double(imread('t1sag.tiff'));
>> FT = fft2(Im);
>> imagesc(abs(fftshift(FT)),[-10000 10000])
```

1. Plot \( y = x \), title graph, label both axes
2. Plot \( x^2 \), \( 1 + x^2 \), and \( (x + 1)^2 \), note different effects of differently positioned 1's.
3. Plot two cycles of a cosine using \( \cos d() \) and \( \cos() \), then plot \( \cos(2x) \), \( \cos(\pi/2+x) \).
4. Plot a Gaussian function using \( \exp(-x^2) \), then offset the Gaussian in \( x \).
5. Plot \( \exp(-x^2)\cos(y) \), find max

6. Plot Fourier transform of: http://www.cogsci.ucsd.edu/~sereno/276/t1sag.tiff